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REMARKS

Prior to entry of this amendment, claims 1-22 were pending and no claims were withdrawn. By the present response, no claim is withdrawn, claims 1, 3, 4, 10, 11, 19 and 20 are cancelled, claims 2, 5-9, 12, 15-18, 21, and 22 are amended, and claims 23 and 24 are added. No new matter is added by these amendments. Applicants reserve the right to prosecute canceled claims in divisional and/or continuation applications. Entry of this amendment is respectfully requested.

Rejection Under 35 U.S.C. §102

Claims 1-4, 8-11, and 20-21 are rejected under 35 U.S.C. 102(e) as being allegedly anticipated by Wilson et al. (US PAT. 7,027,540 hereinafter, "Wilson").

Claims 1 and 23

Claim 1 is presently cancelled in favor of claim 23, and claims that were dependent from claim 1 were amended to depend from claim 23. Claim 23 recites limitations that more clearly distinguish the present invention from Wilson.

Claim 23 is directed to a receiver, as is Wilson. However, the receiver of claim 23 includes a correlation channel estimator that correlates received channel information with "midamble sequences constructed from a single periodic base code, each midamble sequence associated with a different one of the plurality of wireless communication units." By contrast, Wilson discloses correlating "current sample pairs" with "sample pairs delayed by T_u ." (Wilson, Figure 5.) Wilson explains that "correlator 204 ... is arranged to receive the set of received signal samples corresponding to the COFDM symbol via a first input 280. The set of received signal samples are also received via a second input 282 but delayed by a period $T_{sub,u}$ corresponding to the temporal length of the data bearing signal samples of the COFDM symbol." (Wilson, Col. 8, Lines 17-23.) Thus, Wilson does not disclose the correlation channel estimator limitation of claim 23.

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Claim 23 also recites "a cross-correlation peak remover coupled to the correlation channel estimator and the correlation peak identifier, and operable to remove from the correlation channel estimate signals identified cross-correlation peaks corresponding to midamble sequences of other wireless communication units." Although Wilson discloses a "peak detector 212," Wilson does not appear to disclose anything about removing detected correlation peaks, nor more particularly removing cross-correlation peaks that correspond to midamble sequences of wireless communication units other than a desired wireless communication unit. The rejection cites Figure 5 and Col. 8, Lines 16-47 as disclosing a cross-correlation peak remover, but there appears to be no disclosure in these portions of Wilson relating to such structure or functionality of such a structure. Therefore, Applicants respectfully submit that Wilson does not disclose the cross-correlation peak remover limitation of claim 23.

Based at least on the above, Applicants submit that Wilson does not disclose all the limitations of claim 23, and therefore does not anticipate claim 23. Allowance of claim 23 is respectfully requested.

Claims 8 and 22

Claim 8 is directed to a method for channel estimation in a receiver. As generally described above, although Wilson includes a "correlator 204" that correlates "current sample pairs" with "sample pairs delayed by T_u ," Wilson does not disclose "estimating correlations between received channel information and a plurality of midamble sequences, each midamble sequence derived from a single periodic base code."

Claim 8 also includes "identifying peaks in the correlation estimate signals" and "removing identified peaks in the correlation estimate signals that correspond to cross-correlations for transmissions from wireless units other than a selected wireless unit." As initially described with respect to claim 23, Wilson does disclose a "peak detector" that "generate[s] a peak value of the symbol integrator." (Wilson, Col. 8, Lines 37-40.) However, disclosure of a peak detector does

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not disclose identifying peaks in the specific correlation estimate signals produced by correlating channel information with a plurality of midamble sequences.

Additionally, Wilson does not appear to disclose removing a correlation peak from a signal, nor more particularly removing a cross-correlation peak corresponding to wireless communication units other than a desired unit. The rejection cites Col. 8, Lines 16-47 for this limitation. However, there is no apparent disclosure of peak removal of any sort, let alone precisely what is recited in claim 8. Instead, Wilson discloses that the "peak detector 212 then determines the relative displacement which corresponds to the peak of the integrated output signal from the integrator." (Col. 8, Lines 44-48.) As such, Wilson does not even appear to contemplate multiple correlations, and thus would not disclose the method of claim 8. Withdrawal of the rejection against claim 8 is respectfully requested.

Claim 22

Claim 22 is a newly added Beauregard claim similar to the method of claim 8, and allowable at least for the same reasons that claim 8 is allowable, as described above.

Claims 2 and 9

The rejection cites Wilson col. 11, lines 4-16 as disclosing that a cross-correlation peak identifier identifies a cross-correlation peak as having a smaller magnitude than a correlation peak. This section of Wilson discloses that "a centre clip processor 244 operable to pre-process the output signal by identifying the temporal position of the peaks within the output signal which have an amplitude which is less than a predetermined threshold and setting the value of the output signal to a predetermined default value at the identified temporal positions..."

However, Wilson discloses that the "centre clip processor 244" is within the "fine synchronization detector 202" that is also illustrated in Figure 5. As is illustrated in Figure 5, the "centre clip logic 244" [note that numeral 244 is alternatively referred to as processor and logic between the drawings and specification] receives output from "symbol integrator+RAM" 238,

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which in turn receives output from "adaptive filter" 234. Note that therefore the "centre clip" processor/logic 244 does not receive data from correlator 204 in Wilson. Therefore, this processor/logic 244 is not processing correlation data and therefore cannot function according to the limitation of claims 2 and 9. Also, it was previously described above, that Wilson does not disclose the correlations of claim 23 and 8, such that a further refinement on such correlations is a further reason for the novelty of claims 2 and 9 over Wilson. Withdrawal of the rejection is respectfully requested.

Claims 3 and 10

Claims 3 and 10 were cancelled, but the Applicants specifically note that the section of Wilson cited as disclosing the limitations of these claims (Col. 1, Lines 25-40) does not appear to disclose anything about portions of a signal constructed from a single periodic base sequence, or more particularly, that a plurality of midamble sequences are constructed from a single periodic base sequence.

Claims 4 and 11

Claims 4 and 11 were cancelled. The rejection relied on col 14, lines 50-56 as disclosing the limitations of these claims. This section of Wilson discloses

"a receiver having a matched filter implementation ... may be used to detect a synchronisation position in any received signal having a predetermined characteristic. For the example embodiment described above, this predetermined characteristic is that the samples of the guard period are generated by copying data conveyed in another part of the received signal samples. However in other embodiments the predetermined characteristic may be any predetermined signal format, so that the impulse response of the filter is not limited to being adapted to the guard signal samples. For example, the filter may be matched to a known data sequence which may be either a pre-amble to the data to be detected or a mid-amble or a post-amble." (Col. 14, lines 40-56.)

Applicants respectfully submit that this portion of Wilson thus discloses that the "filter" of Wilson may be "matched to a known data sequence." Even if this data sequence were construed as

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a midamble, this section of Wilson does not disclose midamble sequences constructed from a single periodic base code that are correlated with received channel data, and use of the correlations as recited in the independent claims 8, 22 and 23. As such, a mere disclosure of matching a filter to a known data sequence does not disclose the limitations of claims 4 and 11.

Claims 19 and 20 were cancelled.

Claim 21

Claim 21 is directed to an integrated circuit having the receiver of claim 23. It was described above how claim 23 is novel over Wilson. Therefore, an integrated circuit embodying the receiver of claim 23 would also be novel over Wilson, and withdrawal of the rejection against claim 21 is respectfully requested.

Rejection Under 35 U.S.C. §103

Claims 5-7 and 12-14 are rejected under 35 U.S.C. 103(a) as being allegedly unpatentable over Wilson et al. (US PAT. 7,027,540, hereinafter, "Wilson") in view of applicant admitted prior art.

Claims 5-7, and 12-14 each depend from one of claims 8 or 23. It was described above, with respect to claims 23, 8, and 22, that Wilson does not disclose all the limitations of those independent claims. Applicants submit that there is no admission by the Applicants that would cure the above-identified deficiencies of Wilson. Therefore, the proposed combination does not disclose or suggest all the limitations of claims 5-7, and 12-14. As such, these claims are not obvious over the proposed combination, and Applicants respectfully request withdrawal of the rejection against these claims.

Claims 7 and 14

With particular regard to claims 7 and 14, the rejection relies on Wilson, Col. 1, lines 16-21 as disclosing that the "input signals comprise random access PRACH bursts." Applicants

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respectfully submit that there is no such disclosure or suggestion in this section of Wilson. In fact, based on a text search of Wilson, "PRACH" does not appear in Wilson at all. Applicants therefore submit that claims 7 and 14 are also allowable by virtue of their respective additional limitations.

Claims 15-17 are rejected under 35 U.S.C. 103(a) as being allegedly unpatentable over Wilson et al. (US PAT. 7,027,540, hereinafter, "Wilson") in view of Fuchs et al. (US PAT. 6453237 hereinafter, "Fuchs").

Each of claims 15-17 depend from a claim that includes limitations shown not to be disclosed or suggested by Wilson. Therefore, the proposed combination of Wilson and Fuchs would not disclose or suggest all the limitations of claim 15-17. Applicants respectfully request withdrawal of the rejection against these claims.

Claims 18-19 and 22 are rejected under 35 U.S.C. 103(a) as being allegedly unpatentable over Wilson et al. (US PAT. 7,027,540, hereinafter, "Wilson") in view of Beckmann et al. (US PUB. 2004/0137910 hereinafter, "Beckmann").

Claim 18

Claim 18 ultimately depends from claim 8. The limitations of claim 8 were described above, and an explanation as to how these limitations are not taught by Wilson was also provided. The rejection does not allege that Beckmann cures the identified deficiencies of Wilson with respect to the limitations of claim 8. Therefore, Applicants respectfully submit that the present combination would not render claim 18 obvious, and request withdrawal of the rejection.

Claim 19 is cancelled.

Claim 22

Claim 22 is currently amended to be directed to a Beauregard claim having limitations substantially corresponding to claim 8. It was described above how claims 22 and 8 are allowable

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over Wilson. The rejection does not allege that Beckmann cures the deficiencies of Wilson identified above. Therefore, Applicants submit that claim 22 is non-obvious over the cited combination of references, and request withdrawal of the rejection.

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CONCLUSION

In view of the above, each of the presently pending claims in this application is believed to be in immediate condition for allowance. Accordingly, the Examiner is respectfully requested to withdraw the outstanding rejection of the claims and to pass this application to issue. If it is determined that a telephone conference would expedite the prosecution of this application, the Examiner is invited to telephone the undersigned at the number given below.

In the event the U.S. Patent and Trademark office determines that an extension and/or other relief is required, Applicants petitions for any required relief including extensions of time and authorizes the Commissioner to charge the cost of such petitions and/or other fees due in connection with the filing of this document to Deposit Account No. 03-1952 referencing docket no. 562492004100. However, the Commissioner is not authorized to charge the cost of the issue fee to the Deposit Account.

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Respectfully submitted,

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